



RT2012 Tutorial sessions

Saturday June 9

ATCA AND MTCA FOR PHYSICS EXPERIMENTS I

Organizer: Ray Larsen, SLAC (xTCA Workshop Chair), along with Zheqiao Geng, SLAC (xTCA Program Chair) and Sergio Zimmermann, LBNL (RT2012 General Chair)

All Day Saturday and Sunday

9:00-12h00 Boiler Ballroom

12h00-13h30, lunch

13h30-18h00, Boiler Ballroom

DATA ACQUISITION SYSTEMS

Organizer: Mariano Ruiz, Technical University of Madrid

Saturday Afternoon, 13h00-18h00, Whitecotton Ballroom

Sunday June 10

ATCA AND MTCA FOR PHYSICS EXPERIMENTS II

Organizer: Ray Larsen, SLAC (xTCA Workshop Chair), along with Zheqiao Geng, SLAC (xTCA Program Chair) and Sergio Zimmermann, LBNL (RT2012 General Chair)

All Day Saturday and Sunday

9:00-12h00 Boiler Ballroom

12h00-13h30, lunch

13h30-18h00, Boiler Ballroom

DATA ANALYSIS WITH GPU

Organizer: Hemant Shukla, Lawrence Berkeley National Laboratory

Sunday Afternooon

9:00-12h00 Whitecotton Room

12h00-13h30, lunch

13h30-18h00, Whitecotton Ballroom



Monday

Open 1 Welcome and Opening Session

Monday, June 11 8:30-10:40 Crystal Ballroom

Session Chair: Sergio Zimmermann, LBNL, United States, Stefan Ritt, PSI, Switzerland

Open 1-1 Welcome

S. Zimmermann, LBNL, USA

Open 1-2 (invited) Dark Energy from the Largest Galaxy Maps

D. Schlegel, LBNL, USA

Open 1-3 (invited) National Ignition Facility Integrated Computer Control Systems

C. Marshall, G. Brunton, A. Casey, R. Demaret, J. Fisher, T. Frazier, L. Lagin, B. Reed, R. Shelton, O. Edwards

Lawrence Livermore National Laboratory, USA

Open 1-4 (invited) LHC Trigger & DAQ - an Introductory Overview

N. Neufeld, CERN, Switzerland

Coffee break (10:40-11:05)

Opening Session 2

Monday, June 11 11:05-12:25 Crystal Ballroom

Session Chairs: William W. Moses, Lawrence Berkeley National Laboratory, United States Henrik von der Lippe, LBNL

Open 2-1 (invited) The Development of Large-Area Photodetectors with Sub-Millimeter and Sub-Nanosecond Space and Time Resolutions

H. J. Frisch

University of Chicago, Enrico Fermi Institute and Physics Dept., United States

Open 2-2 (invited) Trigger in HEP: Selected Topics for Young Experimentalists

T. Liu, FNAL, United States

Lunch (12:25-13:40)



NSET New Standard, Emerging Technologies and TCA

Monday, June 11 13:40-14:40 Crystal Ballroom

Session Chairs: Zhen-An Liu, Inst. of High Energy Physics, Chinese Academy of Sciences, China, Raymond Larsen, SLAC, United States

NSET-1 HTML 5, Websockets and Sproutcore - Using Emerging Technologies to Control the Dark Energy Camera (DECam)

K. Honscheid, A. Elliott, K. Patton, E. Suchyta, Ohio State University, United States;

E. Buckley Geer, Fermi National Accelerator Laboratory, United States

NSET-2 Recent Progress in Next-Generation Platform Standards for Physics Instrumentation and Controls

R. Larsen

SLAC National Accelerator Laboratory, United States

NSET-3 Scalable SpaceWire Backplane System Using uTCA

T. Yuasa¹, M. Nomachi², T. Takahashi¹, M. Ioki³

¹Japan Aerospace Exploration Agency, Institute of Space and Astronautical Science, Japan; ²Osaka University, Japan; ³Institute for Unmanned Space Experiment Free Flyer, Japan

MN1 Mini-oral 1

Monday, June 11 14:40-15:30 Crystal Ballroom

Session Chairs: Christian Bohm, Univ Stockholm, Sweden, Denis Calvet, CEA

PS1-2 Automatic System-Level Synthesis for Heterogeneous Platforms

H. A. Andrade, K. Ravindran

National Instruments Corporation, United States

PS1-3 Monitoring and Improving the ALICE Data Taking Efficiency

V. Barroso¹, F. Carena¹, W. Carena¹, S. Chapelard¹, F. Costa¹, E. Denes², R. Divia¹, A. Grigore³,

G. Simonetti⁴, C. Soos¹, A. Telesca¹, P. Vande Vyvre¹, B. von Haller¹

¹CERN, Switzerland; ²Hungarian Academy of Sciences, Hungary; ³Polytechnic University of Bucharest, Romania; ⁴Universita Bari, Italy

PS1-4 Open-Standard Blade Systems Enable High Performance Applications

S. McClellan, Texas State University, United States; K. Austin, A. Deikman, ZNYX Networks, United States

PS1-5 An xTCA Compliant and FPGA Based Data Processing Unit for Trigger and Data Acquisition and Trigger Applications

J. Zhao, Z. Liu, H. Xu, Insititue of High Energy and Physics, China; W. Kuehn, II.Physikalischs Institut, Justus-Liebig-Universitaet, Germany

PS1-7 Performance Evaluation of 8-Channel ADC ATCA Card for Direct Sampling of 1.3 GHz Signals

S. Bou Habib, ISE-WUT/DESY, Poland

PS1-9 RF Backplane for MTCA.4 Based LLRF Control System

K. Czuba, Warsaw University of Technology, Poland; M. Hoffmann, T. Jezynski, F. Ludwig, H. Schlarb, DESY, Germany

PS1-15 Development and Calibration of a Real-Time Airborne Radioactivity Monitor Using Gamma-Ray Spectrometry on a Particulate Filter

R. Casanovas, J. J. Morant, M. Salvado

Universitat Rovira i Virgili, Spain

PS1-14 The XFEL RF Interlock System



18th REAL-TIME
CONFERENCE | 2012

June 11-15, 2012, Berkeley, CA

M. Penno¹, H. Leich¹, T. Grebsmuehl², C. Rueger¹, K. Machau²

¹DESY Zeuthen, Germany; ²DESY Hamburg, Germany

PS1-17 Asynchronous and Synchronous Implementations of the Autocorrelation Function for the FPGA X-Ray Pixel Array Detector

M. S. Hromalik^{1,2}, K. S. Green², H. T. Philipp², M. T. W. Tate², S. M. Gruner^{2,3}

¹State University of New York at Oswego, United States; ²Cornell University, United States; ³Cornell High Energy Synchrotron Source (CHESS), United States

PS1-18 Real-Time Fast Controller Prototype for J-TEXT Tokamak

W. Zheng, G. Zhuang, M. Zhang, C. Weng, R. Liu, Y. He, T. Ding, X. Zhang

Huazhong University of Science & Technology, China

PS1-19 A Dedicated Processor for Monte Carlo Computation in Radiotherapy

C. Pili^{1,2}, V. Fanti^{1,2}, G. R. Fois^{1,2}, R. Marzoccheddu^{1,2}, P. Randaccio^{1,2}, S. Siddhanta^{1,2}, J. Spiga^{1,2}, A. Szostak^{1,2}

¹University of Cagliari, Italy; ²INFN Sez. Cagliari, Italy

PS1-20 New RFX-Mod Feedback Control System Based on MARTe Real-Time Framework

G. Manduchi, A. Luchetta, C. Talierecio, A. Soppelsa

Consorzio RFX, Italy

PS1-25 A Single-FPGA Full-Time Beam Former

H. Deschamps, Commissariat a l'Energie Atomique, France

PS1-26 A Two-Stage Distributed Architecture Designed for DAQ of Thousands-Channel Physical Experiment

K. Song^{1,2}, P. Cao^{1,2}, J. Yang^{1,2}

¹University of Science & Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

PS1-27 An Application Using MicroTCA for Real-Time Event Assembly

R. A. Rivera, Fermilab, United States

PS1-28 Digital Programmable Emulator and Analyzer of Radiation Detection Setups

A. Geraci, A. Abba, F. Caponio

Politecnico di Milano, Italy

PS1-12 Firmware Upgrade in xTCA Systems

D. Makowski¹, A. Mielczarek¹, G. Jablonski¹, P. Predki¹, T. Jezynski², H. Schlarb², A. Napieralski¹

¹Technical University of Lodz, Poland; ²Deutsche Elektronen-Synchotron, Germany

PS2-30 Advanced Light Source Control System Upgrade Intelligent Local Controller Redesign

E. Norum, Lawrence Berkeley National Laboratory, USA

PS1-6 Overview of the Data Acquisition Electronics and Concepts for Photon Experiments and Beamlines at the European XFEL

P. Gessler, C. Youngman, M. Kuster, B. Fernandes, O. Batindek

European X-Ray Free Electron Laser Facility GmbH, Germany

PS1-8 Vector Modulator Card for MTCA-Based LLRF Control System for Linear Accelerators

I. Rutkowski, K. Czuba, Warsaw University of Technology, Poland; D. Makowski,

A. Mielczarek, Technical University of Lodz, Poland; H. Schlarb, F. Ludwig, Deutsches Elektronen Synchrotron, Germany

PS1-21 Real Time FPGA-Based Crosstalk Elimination for Multichannel Interferometry Systems in Fusion Diagnostics

S. Hernandez-Montero, J. A. Lopez-Martin, Universidad Politecnica de Madrid, Spain; M. Sanchez, L. Esteban, CIEMAT, Spain

PS1-23 Parallel Task Management Library for MARTe

D. F. Valcarcel¹, D. Alves¹, A. Neto¹, C. Reux², B. B. Carvalho¹, R. Felton³, P. J. Lomas³, J. Sousa¹, L. Zabeo⁴, JET EFDA Contributors^{*5}

¹Associacao EURATOM/IST, Instituto de Plasmas e Fusao Nuclear, Instituto Superior Tecnico, UTL, Portugal; ²Ecole Polytechnique, LPP, CNRS UMR 7648, France; ³Euratom/CCFE Fusion Association, Culham Science Centre, UK; ⁴ITER Organisation, France; ⁵JET-EFDA, Culham Science Centre, UK

PS1-30 Ultra-Fast Streaming Camera Platform for Scientific Applications

M. Caselle, M. Balzer, S. Chilingaryan, A. Herth, A. Kopmann, U. Stevanovic, M. Vogelgesang
Karlsruhe Institute of Technology, Germany



PS1-1 Implementation of an ATCA/AXIe Board for Fast Control and Data Acquisition Systems of Nuclear Fusion Devices

A. J. N. Batista¹, C. Leong², V. Bexiga², A. P. Rodrigues¹, A. Combo¹, B. B. Carvalho¹, P. Ricardo¹, J. Fortunato¹, B. Santos¹, P. Carvalho¹, M. Correia¹, J. P. Teixeira², I. C. Teixeira², J. Sousa¹, B. Goncalves¹, C. A. F. Varandas¹

¹Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Portugal; ²INESC-ID, Portugal

PS1-11 Intelligent Platform Management Controller Software Architecture in ATCA Modules for Fast Control Systems

A. P. Rodrigues¹, M. Correia¹, A. J. N. Batista¹, P. R. Carvalho¹, B. Santos¹, B. B. Carvalho¹, J. Sousa¹, B. Goncalves¹, C. C. M. B. Correia², C. A. F. Varandas¹

¹Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Portugal; ²Universidade de Coimbra, Portugal

Coffee break (15:30-15:50)

PS1 Poster Session 1

Monday, June 11 15:50-17:00 Boiler Room

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A. J. N. Batista¹, C. Leong², V. Bexiga², A. P. Rodrigues¹, A. Combo¹, B. B. Carvalho¹, P. Ricardo¹, J. Fortunato¹, B. Santos¹, P. Carvalho¹, M. Correia¹, J. P. Teixeira², I. C. Teixeira², J. Sousa¹, B. Goncalves¹, C. A. F. Varandas¹

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PS1-2 Automatic System-Level Synthesis for Heterogeneous Platforms

H. A. Andrade, K. Ravindran

National Instruments Corporation, United States

PS1-3 Monitoring and Improving the ALICE Data Taking Efficiency

V. Barroso¹, F. Carena¹, W. Carena¹, S. Chapelard¹, F. Costa¹, E. Denes², R. Divia¹, A. Grigore³, G. Simonetti⁴, C. Soos¹, A. Telesca¹, P. Vande Vyvre¹, B. von Haller¹

¹CERN, Switzerland; ²Hungarian Academy of Sciences, Hungary; ³Polytechnic University of Bucharest, Romania; ⁴Università Bari, Italy

PS1-4 Open-Standard Blade Systems Enable High Performance Applications

S. McClellan, Texas State University, United States; K. Austin, A. Deikman, ZNYX Networks, United States

PS1-5 An xTCA Compliant and FPGA Based Data Processing Unit for Trigger and Data Acquisition and Trigger Applications

J. Zhao, Z. Liu, H. Xu, Institute of High Energy and Physics, China; W. Kuehn, II.Physikalisches Institut, Justus-Liebig-Universitaet, Germany

PS1-6 Overview of the Data Acquisition Electronics and Concepts for Photon Experiments and Beamlines at the European XFEL

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European X-Ray Free Electron Laser Facility GmbH, Germany

PS1-7 Performance Evaluation of 8-Channel ADC ATCA Card for Direct Sampling of 1.3 GHz Signals

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PS1-8 Vector Modulator Card for MTCA-Based LLRF Control System for Linear Accelerators

I. Rutkowski, K. Czuba, Warsaw University of Technology, Poland; D. Makowski, A. Mielczarek, Technical University of Lodz, Poland; H. Schlarb, F. Ludwig, Deutsches Elektronen Synchrotron, Germany

PS1-9 RF Backplane for MTCA.4 Based LLRF Control System



K. Czuba, *Warsaw University of Technology, Poland*; M. Hoffmann, T. Jezynski, F. Ludwig, H. Schlarb, *DESY, Germany*

PS1-10 Timing Distribution and Synchronization of an ATCA Fast Controller for Fusion Devices

M. Correia¹, J. Sousa¹, B. B. Carvalho¹, A. Combo¹, A. P. Rodrigues¹, A. J. N. Batista¹, B. Santos¹, P. R. F. Carvalho¹, B. Goncalves¹, C. M. B. A. Correia², C. A. F. Varandas¹

¹*Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Portugal*; ²*Universidade de Coimbra, Portugal*

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A. P. Rodrigues¹, M. Correia¹, A. J. N. Batista¹, P. R. Carvalho¹, B. Santos¹, B. B. Carvalho¹, J. Sousa¹, B. Goncalves¹, C. C. M. B. Correia², C. A. F. Varandas¹

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PS1-12 Firmware Upgrade in xTCA Systems

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¹*Technical University of Lodz, Poland*; ²*Deutsche Elektronen-Synchrotron, Germany*

PS1-13 Standalone First Level Event Selection Package for the CBM Experiment

I. Kisel^{1,2,3}, I. Kulakov^{1,3}, M. Zyzak^{1,3}

¹*Goethe University Frankfurt, Germany*; ²*FIAS Frankfurt Institute for Advanced Studies, Germany*; ³*GSI Helmholtzzentrum fuer Schwerionenforschung, Germany*

PS1-14 The XFEL RF Interlock System

M. Penno¹, H. Leich¹, T. Grebsmuehl², C. Rueger¹, K. Machau²

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PS1-15 Development and Calibration of a Real-Time Airborne Radioactivity Monitor Using Gamma-Ray Spectrometry on a Particulate Filter

R. Casanovas, J. J. Morant, M. Salvado

Universitat Rovira i Virgili, Spain

PS1-16 Using Data-Oriented Storage Method to Build a High-Parallel and High-Efficiency Disk Cluster

J. Wu, L. F. Liu, Z. Han, S. Chen, J. Shan, K. Y. Tian, J. Dong

University of Sci.&Tech. of China, China, 230026

PS1-17 Asynchronous and Synchronous Implementations of the Autocorrelation Function for the FPGA X-Ray Pixel Array Detector

M. S. Hromalik^{1,2}, K. S. Green², H. T. Philipp², M. T. W. Tate², S. M. Gruner^{2,3}

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PS1-18 Real-Time Fast Controller Prototype for J-TEXT Tokamak

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PS1-19 A Dedicated Processor for Monte Carlo Computation in Radiotherapy

C. Pili^{1,2}, V. Fanti^{1,2}, G. R. Fois^{1,2}, R. Marzeddu^{1,2}, P. Randaccio^{1,2}, S. Siddhanta^{1,2}, J. Spiga^{1,2}, A. Szostak^{1,2}

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PS1-20 New RFX-Mod Feedback Control System Based on MARTE Real-Time Framework

G. Manduchi, A. Luchetta, C. Taliercio, A. Soppelsa

Consorzio RFX, Italy

PS1-21 Real Time FPGA-Based Crosstalk Elimination for Multichannel Interferometry Systems in Fusion Diagnostics

S. Hernandez-Montero, J. A. Lopez-Martin, *Universidad Politecnica de Madrid, Spain*; M. Sanchez, L. Esteban, *CIEMAT, Spain*

PS1-22 A Real-Time Architecture for the Identification of Faulty Magnetic Sensors in the JET Tokamak

A. C. Neto¹, D. Alves¹, B. B. Carvalho¹, G. De Tommasi², H. Fernandes¹, P. J. Lomas³, F. Maviglia², F. Sartori⁴, A. V. Stephen³, D. F. Valcarcel¹, L. Zabeo⁵

¹*EURATOM-IST, Portugal*; ²*EURATOM-ENEA/CREATE, Italy*; ³*EURATOM-CCFE, United Kingdom*; ⁴*Fusion for Energy, Spain*; ⁵*ITER Organisation, France*



PS1-23 Parallel Task Management Library for MARTE

D. F. Valcarel¹, D. Alves¹, A. Neto¹, C. Reux², B. B. Carvalho¹, R. Felton³, P. J. Lomas³, J. Sousa¹, L. Zabeo⁴, JET EFDA Contributors*⁵

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PS1-24 A Real-Time Data Transmission Method Based on Linux for Physical Experimental Readout Systems

P. Cao^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, K. Zhang^{1,2}

¹State Key Laboratory of Particle Detection and Electronics, China; ²University of Science and Technology of China, China

PS1-25 A Single-FPGA Full-Time Beam Former

H. Deschamps, Commissariat a l'Energie Atomique, France

PS1-26 A Two-Stage Distributed Architecture Designed for DAQ of Thousands-Channel Physical Experiment

K. Song^{1,2}, P. Cao^{1,2}, J. Yang^{1,2}

¹University of Science & Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

PS1-27 An Application Using MicroTCA for Real-Time Event Assembly

R. A. Rivera, Fermilab, United States

PS1-28 Digital Programmable Emulator and Analyzer of Radiation Detection Setups

A. Geraci, A. Abba, F. Caponio

Politecnico di Milano, Italy

PS1-29 Phase and Amplitude Drift Calibration of the RF Detectors in a MTCA.4 Based LLRF System

J. Piekarski¹, K. Czuba¹, M. Hoffmann², W. Jalmuzna³, F. Ludwig², H. Schlarb², C. Schmidt², B. Yang²

¹Institute of Electronic Systems, Poland; ²Deutsches Elektronen-Synchrotron, Germany; ³Technical University of Lodz, Poland

PS1-30 Ultra-Fast Streaming Camera Platform for Scientific Applications

M. Caselle, M. Balzer, S. Chilingaryan, A. Herth, A. Kopmann, U. Stevanovic, M. Vogelgesang

Karlsruhe Institute of Technology, Germany

PS1-31 The LHCb off-Site HLT Farm Demonstration

G. Liu, N. Neufeld, CERN, Switzerland

PS1-32 A New Generation of Real-Time Systems in the JET Tokamak

D. M. Alves¹, A. C. Neto¹, D. F. Valcarel¹, R. Felton², J. M. Lopez³, A. Barbalace⁴, L. Boncagni⁵, P. Card², A. Goodyear², S. Jachmich^{6,7}, P. J. Lomas², F. Maviglia⁸, P. A. McCullen², A. Murari⁴, M. Rainford², C. Reux⁹, F. Rimini², F. Sartori¹⁰, A. V. Stephen², J. Vega¹¹, R. Vitelli¹², L. Zabeo¹³, K.-D. Zastrow²

¹Associaao EURATOM/IST, Instituto de Plasmas e Fusao Nuclear - Laboratrio Associado, Portugal; ²EURATOM/CCFE Fusion Association, Culham Science Centre, Abingdon, Oxon, OX14 3DB, United Kingdom; ³CAEND. Universidad Politcnica de Madrid, Spain, Spain; ⁴Associazione EURATOM-ENEA sulla Fusione, Consorzio RFX, Padova, Italy, Italy; ⁵Associazione EURATOM/ENEA, 00040 Frascati, Italy, Italy; ⁶Laboratory for Plasma Physics, Ecole Royale Militaire/Koninklijke Militaire School, EURATOM-Associat, Belgium; ⁷EFDA-CSU, Culham Science Centre, Abingdon, OX14 3DB, UK, United Kingdom; ⁸Associazione EURATOM-ENEA-CREATE, Univ. di Napoli Federico II, Via Claudio 21, 80125, Napoli, Italy, Italy; ⁹Ecole Polytechnique, LPP, CNRS UMR 7648, 91128 Palaiseau, France, France; ¹⁰Fusion for Energy, 08019 Barcelona, Spain, Spain; ¹¹Laboratorio Nacional de Fusion, Asociacion EURATOM-CIEMAT, Madrid, Spain, Spain; ¹²Dipartimento di Informatica, Sistemi e Produzione, Universit di Roma Tor Vergata 00133 Rome, Italy, Italy; ¹³ITER, St. Paul-Lez-Durance 13108, France, France



RTSA Real Time System Architectures

Monday, June 11 17:00-18:40 Crystal Ballroom

Session Chairs: *Ryosuke Itoh, KEK, Japan,
Klaus Honscheid, Ohio State University*

RTSA-1 Auger ACCESS - Remote Monitoring and Controlling the Auger Experiment

T. Jejkal¹, H.-J. Mathes¹, J. Rautenberg², M. Kleifges¹, H. Gemmeke¹

¹Karlsruhe Institute of Technology, Germany; ²University of Wuppertal, Germany

RTSA-2 Belle2Link: an Unified High Speed Data Collection with Slow Control in Belle II Experiment

Z.-A. Liu, D. Sun, J. Zhao, H. Lin, F. Guo, C. Wang, Inst. of High Energy Physics, Chinese Academy of Sciences, China; M. Nakao, R. Itoh, T. Higuchi, S. Y. Suzuki, KEK, Japan

RTSA-3 A System for Monitoring and Tracking the LHC Beam Spot Within the ATLAS High Level Trigger

R. Bartoldus, J. Cogan, A. Salnikov, E. Strauss, SLAC, United States; F. Winklmeier, CERN, Switzerland

RTSA-4 Data Flow and High Level Trigger of Belle II DAQ System

R. Itoh, T. Higuchi, M. Nakao, S. Y. Suzuki, KEK, Japan; S. Lee, Korea University, Korea

RTSA-5 A Prototype Clock System for LHAASO WCDA

L. Shang^{1,2}, K. Song^{1,2}, P. Cao^{1,2}, C. Li^{1,2}, S. Liu^{1,2}, Q. An^{1,2}

¹University of Science and Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

Conference reception (Boiler Room) (19h00-20h30)



Tuesday

TRG Triggers

Tuesday, June 12 08:40-10:40 Crystal Ballroom

*Session Chairs: Micheal LeVine, BNL, United States,
Lorne J. Levinson, Weizmann Institute of Science, Israel*

TRG-1A Hardware Tracker Finder (FTK) for ATLAS Trigger

G. Volpi, INFN Frascati, U of Chicago

TRG-2 The ALICE High Level Trigger: the 2011 Run Experience.

T. Kollegger (), FIAS/University of Frankfurt, Germany*

TRG-3 The evolution and performance of the ATLAS calorimeter-based triggers in 2011 and 2012

M. Wessels, University of Heidelberg, KIP, Germany; ; I. Radoslavova Hristova, Humboldt-Universitaet zu Berlin, Germany

TRG-4 Use of Expert System and Data Analysis Technologies in Automation of Error Detection, Diagnosis and Recovery for ATLAS Trigger-DAQ Controls Framework

A. Kazarov, Petersburg Nuclear Physics Institute, NRC Kurchatov Institute, Russia; G. Lehmann Miotto, L. Magnoni, CERN, Switzerland; A. Corso Radu, University of California Irvine, USA

TRG-5 Evolution and Performance of the ATLAS Trigger System with p-p Collisions at 7 TeV

T. Kono, IFAE, Spain

TRG-6 Recent Experience and Future Evolution of the CMS High Level Trigger System

A. C. Spataru¹, G. Bauer², U. Behrens³, J. Branson⁴, S. Bukowiec¹, O. Chaze¹, S. Cittolin^{5,4}, J. A. Coarasa¹, C. Deldicque¹, M. Dobson¹, A. Dupont¹, S. Erhan⁴, D. Gigi¹, F. Glege¹, R. Gomez-Reino¹, C. Hartl¹, A. Holzner⁴, L. Masetti¹, F. Meijers¹, E. Meschi¹, R. K. Mommesen⁶, C. Nunez-Barranco-Fernandez¹, V. O'Dell⁶, L. Orsini¹, C. Paus², A. Petrucci¹, M. Pieri⁴, G. Polese¹, A. Racz¹, O. Raginel², H. Sakulin¹, M. Sani⁴, C. Schwick¹, F. Stoeckli², K. Sumorok²

¹CERN, Switzerland; ²Massachusetts Institute of Technology, USA; ³DESY, Germany; ⁴University of California, California, USA; ⁵Eidgenossische Technische Hochschule, Switzerland; ⁶FNAL, USA

Coffee break (10:40-11:05)

MSP1 Monitoring and Signal Processing 1

Tuesday, June 12 11:05-12:25 Crystal Ballroom

*Session Chairs: Mike E. Huffer, SLAC, United States,
Sascha M. Schmeling, CERN, Switzerland*

MSP1-1 Novel, Highly-Parallel Software for the Online Storage System of the ATLAS Experiment at CERN: Design and Performances

T. Colombo^{1,2}, W. Vandelli¹

¹CERN, Switzerland; ²Universita' di Pavia, Italy

MSP1-2 Advanced Visualization System for Monitoring the ATLAS TDAQ Network in Real-Time

S. Batraneanu, University of California, Irvine, United States; D. Campora Perez, University of Seville, Spain; B. Martin, D. Savu, S. Stancu, CERN, Switzerland; L. Leahu, Politehnica University Bucharest, Romania

MSP1-3 A High-Throughput Platform for Real-Time X-Ray Imaging

S. A. Chilingaryan¹, M. Vogelgesang¹, T. dos Santos Rolo¹, A. Mirone², A. Kopmann¹

¹Karlsruhe Institute of Technology, Germany; ²European Synchrotron Radiation Facility, France

MSP1-4 Architecture and Operation of the Control System for ALICE Detector at CERN

P. Chochula, CERN, Switzerland



Lunch (12:25-13:40)

MSP2 Monitoring and Signal Processing 2

Tuesday, June 12 13:40-14:40 Crystal Ballroom

Session Chair: Denis Calvet, CEA

MP2-1 artdaq: An Event Filtering Framework for Fermilab Experiments

K. Biery, C. Green, J. Kowalkowski, M. Paterno, R. Rechenmacher

Fermi National Accelerator Lab, United States

MP2-2 FPGA/NIOS Implementation of an Adaptive FIR Filter Using Linear Prediction to Reduce Narrow-Band RFI for Radio Detection of Cosmic Rays

Z. Szadkowski, *University of Lodz, Poland*; D. Fraenkel, A. M. van den Berg, *University of Groningen, Netherlands*

MP2-3 FPGA-Based Algorithm for Center of Gravity Calculation of Clustered Signals

A. A. Ushakov¹, B. Mindur², T. Fiutowski², C. Schulz¹, F. Winklmeier¹

¹*Helmholtz-Zentrum Berlin, Germany*; ²*AGH University for Science and Technology, Poland*

MO3 Mini-orals 3

Tuesday, June 12 14:40-15:40 Crystal Ballroom

Session Chairs: Micheal LeVine, BNL, United States,

Patrick Le Du, IPNL, France

PS2-3 A MAC Layer Congestion Control Method to Achieve High Network Performance for EAST Tokamak

K. Shi^{1,2}, Y. Shu², S. Lin¹, J. Luo³

¹*Tianjin University of Technology, China*; ²*Tianjin University, China*; ³*Academia Sinica, China*

PS2-4 High Performance Event Building with InfiniBand Network in CBM Experiment

S. Linev

GSI Helmholtzzentrum fuer Schwerionenforschung, Germany

PS2-5 Modulator-Based, High Bandwidth Optical Links for HEP Experiments

W. S. Fernando, R. W. Stanek, D. G. Underwood, D. Lopez

Argonne National Lab, United States

PS2-9 A High Density Time-to-Digital Converter Prototype Module for BES-II End-Cap TOF Upgrade

H. Fan, C. Feng, W. Sun, C. Yin, S. Liu, Q. An

University of Science and Technology of China, China

PS2-10 Development of White Rabbit Interface for Synchronous Data Acquisition and Timing Control

Q. Du, G. Gong, W. Pan, H. Lu, *Tsinghua University, China*

PS2-18 Data Formatter System for the ATLAS Fast TracKer

J. Olsen, T. Liu, B. Penning, *Fermi National Accelerator Laboratory, United States*; H. L. Li, *University of Chicago, United States*

PS2-20 Commissioning and Performance of a Fast Level-2 Trigger System at VERITAS

B. Zitzer¹, A. Weinstein², M. Schroedter³, M. Orr³, M. Oberling¹, A. Kreps¹, F. Krennrich², G. Drake¹, K. Byrum¹, J. T. Anderson¹

¹*Argonne National Laboratory, United States*; ²*Iowa State University, United States*; ³*Smithsonian Astrophysical Observatory, United States*

PS2-21 The ATLAS Hadronic Tau Trigger

C. Cuenca Almenar, *Yale University, Switzerland*

PS2-24 Multifunction-Timing Card ITTEV2 for CoDaC Systems of Wendelstein 7-X

J. Schacht, *Max-Planck-Institute for Plasmaphysics, Germany*; J. Skodzik, *University Rostock, Germany*



PS2-26 HAWC TeV Gamma Ray Observatory Trigger System

M. DuVernois, *University of Wisconsin, United States*

PS2-27 Development of the Control Card for the Digitizers of the Second Generation Electronics of AGATA

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triassi²

¹*Instituto de Fisica Corpuscular (CSIC-UV), Spain*; ²*Istituto di Fisica Nucleare (INFN), Sezione di Padova, Italy*; ³*Departamento Ingeniera Electronica, Universitat de Valencia, Spain*; ⁴*Istituto di Fisica Nucleare (INFN), Sezione di Milano, Italy*

PS2-29 Evolution and Performance of Electron and Photon Triggers in ATLAS in the Year 2011

A. Tricoli, *CERN, Switzerland*; T. Kono, *DESY, Germany*; V. Solovyev, *B.P. Konstantinov Petersburg Nuclear Physics Institute, Russia*

PS2-2 Low Power, Accurate Time Synchronization MAC Protocol for Real-Time Wireless Data Acquisition

J. Zhang, J. Wu, Z. Han, L. Liu, K. Tian

University of Science and Technology of China, China

PS2-6 Waveform Timing Algorithms with a 5 GS/s Fast Pulse Sampling Module

J. Wang^{1,2}, L. Zhao^{1,2}, C. Feng^{1,2}, Y. Zhang^{1,2}, S. Liu^{1,2}, Q. An^{1,2}

¹*University of Science and Technology of China, China*; ²*Department of Modern Physics, University of Science and Technology of China, China*

PS2-1 High Performance FPGA-Based DMA Interface for PCIe

H. Kavianipour, S. Muschter, C. Bohm

Stockholm University, Sweden

PS2-12 Real-Time Data Analysis Using the WaveDREAM Data Acquisition System

H. Friederich^{1,2}, G. Davatz^{1,2}, U. Gendotti¹, H. Meyer¹, D. Murer^{1,2}

¹*Arktis Radiation Detectors Ltd, Switzerland*; ²*ETH Zurich, Institute for Particle Physics, Switzerland*

PS2-15 VHDL Design of Digital Adaptive Filters for PANDA Signal Processing

M. Greco, M. P. Bussa, M. Destefanis, M. Maggiora, S. Spataro

University of Torino and INFN, Italy

PS2-11 A High-Resolution Time-to-Digital Converter Based on Multi-Phase Clock Implement in Field-Programmable-Gate-Array

Z. Yin, S. Liu, X. Hao, S. Gao, Q. An

University of Science and Technology of China, China

PS2-17 Optimization of the detection of very inclined showers using a spectral DCT trigger in arrays of surface detectors

Z. Szadkowski, *University of Lodz, Poland*

PS2-19 COTS Real Time Quench Detection System for Superconducting Magnets

R. Rajagopal, *Verivolt LLC, United States*; S. Wunder, *National Instruments, United States*

PS2-28 FPGA Implementation of the 32-Point DFT for a Wavelet Trigger of Cosmic Rays Experiments

Z. Szadkowski, *University of Lodz, Poland*

PS2-22 The ATLAS Muon Trigger Performance in Proton-Proton Collisions at Sqrt(s)=7 TeV

K. Nagano, *KEK, Japan*; K. Black, *Boston University, US*; T. Matsushita, *Kobe University, Japan*

Coffee break (15:30-15:50)

PS2 Poster Session 2

Tuesday, June 12 15:50-17:10 Boiler Room

PS2-1 High Performance FPGA-Based DMA Interface for PCIe

H. Kavianipour, S. Muschter, C. Bohm



Stockholm University, Sweden

PS2-2 Low Power, Accurate Time Synchronization MAC Protocol for Real-Time Wireless Data Acquisition

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PS2-3 A MAC Layer Congestion Control Method to Achieve High Network Performance for EAST Tokamak

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PS2-4 High Performance Event Building with InfiniBand Network in CBM Experiment

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GSI Helmholtzzentrum fuer Schwerionenforschung, Germany

PS2-5 Modulator-Based, High Bandwidth Optical Links for HEP Experiments

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PS2-6 Waveform Timing Algorithms with a 5 GS/s Fast Pulse Sampling Module

J. Wang^{1,2}, L. Zhao^{1,2}, C. Feng^{1,2}, Y. Zhang^{1,2}, S. Liu^{1,2}, Q. An^{1,2}

¹University of Science and Technology of China, China; ²Department of Modern Physics, University of Science and Technology of China, China

PS2-7 The Study of Multi-Channel High Precision Pulse Synchronizer

F. Li^{1,2}, G. Jin^{1,2}

¹State Key Laboratory of Particle Detection and Electronics, China; ²University of Science and Technology of China, China

PS2-8 Sophisticated Online Analysis in ADC Boards

P. Wuestner¹, A. Erven¹, W. Erven¹, G. Kemmerling¹, H. Kleines¹, P. Kulessa², P. Marciniewski³, H. Ohm¹, K. Pysz¹, V. Serdyuk¹, S. van Waasen¹, P. Wintz¹

¹Research Centre Juelich, Germany; ²Institute of Nuclear Physiks PAN, Poland; ³Uppsala University, Sweden

PS2-9 A High Density Time-to-Digital Converter Prototype Module for BES-II End-Cap TOF Upgrade

H. Fan, C. Feng, W. Sun, C. Yin, S. Liu, Q. An

University of Science and Technology of China, China

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Q. Du, G. Gong, W. Pan, H. Lu, *Tsinghua University, China*

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¹Arktis Radiation Detectors Ltd, Switzerland; ²ETH Zurich, Institute for Particle Physics, Switzerland

PS2-13 DSP Based Smart Sensorless Stepping Motor Driver for LHC Collimators

A. Masi, M. Butcher, R. Losito, R. Picatoste Ruilope

CERN, Switzerland

PS2-14 High Accuracy Reading Algorithm for Ironless Linear Position Sensor

A. Masi, A. Danisi, M. Di Castro, R. Losito

CERN, Switzerland

PS2-15 VHDL Design of Digital Adaptive Filters for PANDA Signal Processing

M. Greco, M. P. Bussa, M. Destefanis, M. Maggiora, S. Spataro

University of Torino and INFN, Italy



PS2-16 Experience with the Custom-Developed ATLAS Trigger Monitoring and Reprocessing Infrastructure

V. Bartsch, *University of Sussex, United Kingdom*; S. George, *Royal Holloway University of London, United Kingdom*; M. zur Nedden, *Humboldt-Universitaet zu Berlin, Germany*

PS2-17 Optimization of the detection of very inclined showers using a spectral DCT trigger in arrays of surface detectors

Z. Szadkowski, *University of Lodz, Poland*

PS2-18 Data Formatter System for the ATLAS Fast TracKer

J. Olsen, T. Liu, B. Penning, *Fermi National Accelerator Laboratory, United States*; H. L. Li, *University of Chicago, United States*

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¹*Argonne National Laboratory, United States*; ²*Iowa State University, United States*; ³*Smithsonian Astrophysical Observatory, United States*

PS2-21 The ATLAS Hadronic Tau Trigger

C. Cuenca Almenar, *Yale University, Switzerland*

PS2-22 The ATLAS Muon Trigger Performance in Proton-Proton Collisions at Sqrt(s)=7 TeV

K. Nagano, *KEK, Japan*; K. Black, *Boston University, US*; T. Matsushita, *Kobe University, Japan*

PS2-24 Multifunction-Timing Card ITTEV2 for CoDaC Systems of Wendelstein 7-X

J. Schacht, *Max-Planck-Institute for Plasmaphysics, Germany*; J. Skodzik, *University Rostock, Germany*

PS2-25 The ATLAS Jet Trigger

M. Campanelli, *university college london, United Kingdom*; L. Lopes, *Laboratorio de Instrumentacao e Fisica Experimental de Particulas (PT), Portugal*

PS2-26 HAWC TeV Gamma Ray Observatory Trigger System

M. DuVernois, *University of Wisconsin, United States*

PS2-27 Development of the Control Card for the Digitizers of the Second Generation Electronics of AGATA

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

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PS2-28 FPGA Implementation of the 32-Point DFT for a Wavelet Trigger of Cosmic Rays Experiments

Z. Szadkowski, *University of Lodz, Poland*

PS2-29 Evolution and Performance of Electron and Photon Triggers in ATLAS in the Year 2011

A. Tricoli, *CERN, Switzerland*; T. Kono, *DESY, Germany*; V. Solovyev, *B.P. Konstantinov Petersburg Nuclear Physics Institute, Russia*

PS2-30 Advanced Light Source Control System Upgrade Intelligent Local Controller Redesign

E. Norum, *Lawrence Berkeley National Laboratory, USA*

Design Considerations of Ad-Hoc Wireless Building Radiation Monitoring Network for Nuclear Accident Emergency Response Applications

H.-H. Tseng, *Institute of Nuclear Energy Research, Taiwan*; H.-I. Lin, T.-P. Wang, T.-C. Hung, *National Taipei University of Technology, Taiwan*



UPG1 Upgrades 1

Tuesday, June 12 17:15-18:15 Crystal Ballroom

*Session Chairs: Martin Purschke, BNL, United States,
David J. Abbott, Jefferson Lab, United States*

UPG1-1 MEP V2, the New Event Building Protocol for the Upgraded LHCb Experiment

R. Schwemmer, N. Neufeld, G. Liu, CERN, Switzerland

UPG1-2 A New Readout Control System for the LHCb Upgrade at CERN

F. Alessio, R. Jacobsson, CERN, Switzerland

UPG1-3 Topological and Central Trigger Processor for 2014 LHC luminosities

J. T. Childers, G. Anders, B. Bauss, D. Berge, V. Büsscher, R. Degele, E. Dobson, A. Ebling, N. Ellis, P. Farthouat, C. Gabaldon, B. Gorini, S. Haas, W. Ji, M. Kaneda, S. Maettig, A. Messina, C. Meyer, S. Moritz, T. Pauly, R. Pottgen, U. Schäfer, E. Simioni, R. Spiwoks, S. Tapprogge, T. Wengler, V. Wengler
CERN, Switzerland



Wednesday

DAQ1 Data Acquisition 1 / Medical Imaging

Wednesday, June 13 08:30-10:40 Crystal Ballroom

Session Chair: TBA

DAQ1-1 (invited) The Trend of Data Path Structures for Data Acquisition Systems (DAQ) in Positron Emission Tomography (PET) Systems

E. Kim, P. D. Olcott, K. J. Hong, J. Y. Yeom, C. S. Levin

Stanford University, USA

DAQ1-2 Design of a Real-Time FPGA-Based DAQ for the LabPET II, an APD-Based Scanner Dedicated to Small Animal PET Imaging

L. Njejimana, M.-A. Tetrault, L. Arpin, A. Burghgraeve, P. Maille, J.-C. Lavoie, C. Paulin, K. C. Koua, H. Bouziri, S. Panier, M. W. Ben Attouch, M. Abidi, J.-F. Pratte, R. Lecomte, R. Fontaine

Universite de Sherbrooke, Canada

DAQ1-3 A Building Block for Nuclear Medicine Imaging Systems Data Acquisition

T. K. Lewellen, R. S. Miyaoka, D. DeWitt, S. Hauck

University of Washington, United States

DAQ1-4 3D Ultrasound Computer Tomography for Breast Cancer Diagnosis

M. Balzer, M. Birk, R. Dapp, A. Menshikov, M. Zapf, H. Gemmeke, N. Ruiter

KIT, Germany

DAQ1-5 FPGA-Based Multi-Channel DAQ Systems with External PCI Express Link to GPU Compute Servers

T. Bergmann¹, D. Bormann¹, M. A. Howe², M. Kleifges¹, A. Kopmann¹, N. Kunka¹, A. Menshikov¹, D. Tcherniakhovski¹

¹*Karlsruhe Institute of Technology, Germany; ²University of North Carolina, USA*

DAQ1-6 Field-Programmable Gate Array (FPGA) Firmware for the Fermilab E906 (SeaQuest) Trigger

J. Wu, *FNAL, IL*; S.-H. Shiu, *Institute of Physics, Academia Sinica, Taiwan*

Coffee break (10:40-11:05)

UPG2 Upgrades 2

Wednesday, June 13 11:05-12:05 Crystal Ballroom

Session Chairs: Ted Liu, FNAL, United States,

Frank Winklmeier, CERN, Switzerland

UPG2-1 The Generic Evaluation Tool for the LHCb Event Builder Network Upgrade

G. Liu, N. Neufeld, *CERN, Switzerland*

UPG2-2 Upgrade Project and Plans for the ATLAS Detector and Trigger

F. Pastore, R. Vari

Royal Holloway University of London, United Kingdom

UPG2-3 Associative Memories for L1 Track Triggering in LHC Environment

D. Magalotti¹, E. Pedreschi¹, A. Annovi¹, P. Giannetti¹, M. Piendibene^{1,2}, G. Broccolo³, F. Palla^{1,3}, R. Dell'Orso¹, F. Ligabue³, S. Taroni^{1,4}, L. Servoli¹, A. Nappi^{1,4}

¹*INFN, Italy; ²Universit di Pisa, Italy; ³Scuola Normale Superiore, Italy; ⁴Universita' degli studi di Perugia, Italy*



MO4 Mini-orals 4

Wednesday, June 13 12:05-12:25 Crystal Ballroom

*Session Chairs: Niko Neufeld, CERN, Switzerland,
Rejean Fontaine, U. Sherbrooke, Canada*

PS3-1 Readout Electronics and Data Acquisition of a Time of Flight Detector for Positron Emission Tomography

J. Y. Yeom, V. Spanoudaki, K. J. Hong, C. S. Levin
Stanford University, United States

PS3-3 Design of the Trigger Interface and Distribution Board for CEBAF 12 GeV Upgrade

W. Gu, D. Abbott, C. Cuevas, G. Heyes, E. Jastrzembski, B. Moffit, B. Raydo, J. Wilson, H. Dong, S. Kaneta, N. Nganga, C. Timmer, V. Gyurjyan
Jefferson Lab, United States

PS3-14 The Readout Electronics of the Micromegas-Based Large Time Projection Chamber Prototype for the International Linear Collider

D. Calvet, D. Attie, D. Besin, P. Colas, R. Joannes, A. Le Coguie, S. Lhenoret, I. Mandjavidze, M. Riallot, W. Wang, E. Zonca
CEA-IRFU, France

PS3-18 Design of an Optical Uplink with 10Gbit/s Link Between PCIe and MicroTCA

H. Kleines, P. Wstner, A. Ackens, M. Drochner, P. Kmmerling, S. van Waasen, M. Ramm
Forschungszentrum Jülich, Germany

PS3-21 Development of an AMC Module MMC

P. Kaemmerling, M. Drochner, H. Kleines, S. van Waasen, M. Ramm, A. Ackens
Forschungszentrum Juelich, Germany

PS4-10 New strategy for the control of low frequency large band mechanical suspensions and inertial platforms

F. Barone^{1,2}, F. Acernece^{1,2}, R. De Rosa^{3,2}, G. Giordano¹, R. Romano^{1,2}

¹*Universita'di Salerno, Italy*; ²*Istituto Nazionale di Fisica Nucleare, Italy*; ³*Universita' di Napoli Federico II, Italy*

PS3-39 SEUs Tolerance in FPGAs Based Digital LLRF System for XFEL

M. K. Grecki, *DESY, Hamburg, Germany*

PS3-41 Multiple Register Synchronization with a High-Speed Serial Link Using the Aurora Protocol

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

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PS3-42 Graphical User Interface for Serial Protocols Through a USB Link

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹*Instituto de Fisica Corpuscular (CSIC-UV), Spain*; ²*Istituto de Fisica Nucleare (INFN), Sezione di Padova, Italy*; ³*Departamento Ingeniera Electronica, Universitat de Valencia, Spain*; ⁴*Istituto de Fisica Nucleare (INFN), Sezione di Milano, Italy*

EXC Wine Country Excursion (with ticketed purchase)

Wednesday, June 13, 12:30 – 18:00

Tickets are \$30 for registered attendees, \$70 for a companion, and may be purchased at the registration desk. The fee includes a box lunch which will be distributed upon bus load-in. The tour is limited to 100 people total: first come, first served.

Coaches will depart the hotel at approximately 12:30 and will return around 18:00.



Thursday

DAQ2 Data Acquisition 2 / Fusion

Thursday, June 14 08:30-10:40 Crystal Ballroom

Session Chairs: Carlos Varandas, Instituto de Plasmas e Fuso Nuclear,
Kay Rehlich, DESY, Germany

DAQ2-1 (invited) Trends on Control and Data Acquisition in Fusion Devices: Towards High Availability

B. Goncalves

Associao Euratom-IST, Instituto de Plasmas e Fuso Nuclear-Laboratrio Associado, Instituto Superior, Portugal

DAQ2-2 Feedforward Power Distortion Correction in RF Power Delivery Systems for Plasma Processing Systems

D. J. Coumou, MKS, ENI Products, United States

DAQ2-3 Prototyping Control and Data Acquisition for the ITER Neutral Beam Test Facility

A. Luchetta¹, G. Manduchi¹, A. Soppelsa¹, C. Taliercio¹, F. Paolucci², F. Sartori², P. Barbato¹, M. Breda¹, R. Capobianco¹, F. Molon¹, M. Moressa¹, S. Polato¹, P. Simionato¹, E. Zampiva¹

¹*Consorzio RFX - CNR, Italy; ²Fusion for Energy, Spain*

DAQ2-4 Real-Time Processing System for the JET Hard X-Ray and Gamma-Ray Profile Monitor Enhancement

A. M. Fernandes¹, R. C. Pereira¹, A. Neto¹, D. F. Valcarcel¹, J. Sousa¹, B. B. Carvalho¹, V. Kiptily², B. Syme², P. Blanchard³, A. Murari⁴, C. M. B. A. Correia⁵, C. A. F. Varandas¹, JET-EFDA Contributors⁶

¹*Instituto Superior Tecnico, Universidade Tecnica de lisboa, Portugal; ²Culham Science Centre, UK; ³Ecole Polytechnique Federale de Lausanne (EPFL), CRPP, Switzerland; ⁴Consorzio RFX, Italy; ⁵Dept. de Fisica, Universidade de Coimbra, Portugal; ⁶See the Appendix of F. Romanelli et al., Proceedings of the 23rd IAEA Fusion Energy Conference 2010, Korea*

DAQ2-5 Study of Radiation Damage in Front-End Electronics Components

T. Higuchi, M. Nakao, R. Itoh, S. Y. Suzuki, High Energy Accelerator Research Organization, Japan;
E. Nakano, Osaka City University, Japan

DAQ2-6 Readout Hardware and Firmware Architecture of the HFT PXL Detector at STAR

J. Schambach¹, L. Greiner², T. Stezelberger², X. Sun², M. Szelezniak^{2,3}, C. Vu²

¹*University of Texas at Austin, United States; ²Lawrence Berkeley National Laboratory, United States; ³IPHC (Institut Pluridisciplinaire Hubert Curien), France*

Coffee break (10:40-11:05)

DAQ3 Data Acquisition 3

Thursday, June 14 11:05-12:25 Crystal Ballroom

Session Chair: Masaharu Nomachi, Osaka Univ., Japan

DAQ3-1 The Belle II Pixel Detector Data Acquisition and Reduction System

B. Spruck¹, T. Gessler¹, W. Kuehn¹, S. Lange¹, H. Lin², Z. Liu², D. Muenchow¹, H. Xu^{1,2}, J. Zhao²

¹*University Giessen, Germany; ²Institute of High Energy Physics, China*

DAQ3-2 Design Concepts for a Hierarchical Synchronized Data Acquisition Network for CBM

F. Lemke, U. Bruening, University of Heidelberg, Germany



DAQ3-3 Electromagnetic Calorimeter Trigger for PANDA Experiment

Z.-A. Liu, Q. Wang, H. Xu, J. Zhao, H. Lin, *Inst. of High Energy Physics, Chinese Academy of Sciences, China*; T. Gessler, S. Lange, D. Muenchow, B. Spruck, W. Kuehn, *Justus-Libig-universitat Giessen, Germany*

DAQ3-4 Implementation and First Results of the Real-Time Computing System for the Gamma Ray Energy Tracking in-Beam Nuclear Array (GRETINA)

C. M. Campbell¹, I.-Y. Lee¹, M. Cromaz¹, D. Doering¹, C. Lionberger¹, D. C. Radford², T. Stezelberger¹, S. Zimmermann¹

¹*Lawrence Berkeley National Laboratory, United States*; ²*Oak Ridge National Laboratory, United States*

Lunch (12:25-13:40)

DAQ4 Data Acquisition 4

Thursday, June 14 13:40-14:40 Crystal Ballroom

*Session Chairs: Pierre Andre Amaudruz, Triumf, Canada,
Bruno Goncalves, IPFN, Lisbon, Portugal, Portugal*

DAQ4-1 Extending the IceCube DAQ System by Integration of the Generic, High-Speed Sorter Module TESS

C. C. W. Robson, *Stockholms universitet, Sweden*; K. Hanson, *Universit Libre de Bruxelles, Belgium*

DAQ4-2 Readout of GEM Stacks with the CERN SRS System

M. L. Purschke

Brookhaven National Laboratory, United States

DAQ4-3 GPS Timing and Control System for the HAWC Experiment

A. U. Abeysekara, D. Edmunds, J. T. Linnemann, T. N. Ukwatta

Michigan State University, United States

MO6 Mini-orals 6

Thursday, June 14 14:40-15:40 Crystal Ballroom

*Session Chair: Guenter Eckerlin, DESY, Germany,
Jean Pierre Martin, U. Montreal, Canada*

PS3-24 Research of Long Distance Clock Distribution System

Y. Yang, K. Hanson, T. Meures

Interuniversity Institute for High Energies (IIHE), Brussels, Belgium

PS3-25 Development of the Data Acquisition System of a Large TPC for the ILC

G. W. P. De Lentdecker, E. Verhagen, Y. Yang, *Universite Libre de Bruxelles, Belgium*; L. Jonsson, B. Lundberg, U. Mjornmark, A. Oskarsson, L. Osterman, E. Stenlund, *Lund University, Sweden*

PS3-26 Real-Time Performance of Commercial Intel-Based VME Controllers for the CODA Data Acquisition System

B. J. Moffit, *Jefferson Lab, United States*

PS3-27 A Readout System Utilizing the APV25 ASIC for the Forward GEM Tracker in STAR

G. J. Visser¹, J. T. Anderson², B. Buck³, A. S. Kreps², T. Ljubicic⁴

¹*Indiana University, United States*; ²*Argonne National Laboratory, United States*; ³*Massachusetts Institute of Technology, United States*; ⁴*Brookhaven National Laboratory, United States*



PS3-28 A Comprehensive Zero-Copy Architecture for High Performance Distributed Data

Acquisition over Advanced Network Technologies for the CMS Experiment

A. Petrucci¹, G. Bauer², U. Behrens³, J. Branson⁴, S. Bukowiec¹, O. Chaze¹, S. Cittolin⁵, J. A. Coarasa Perez¹, C. Deldicque¹, M. Dobson¹, A. Dupont¹, S. Erhan⁶, D. Gigl¹, F. Glege¹, R. Gomez-Reino¹, C. Hartl¹, A. Holzner⁴, L. Masetti¹, F. Meijers¹, E. Meschi¹, R. Mommsen⁷, C. Nunez-Barranco-Fernandez¹, V. O'Dell⁷, L. Orsini¹, C. Paus², M. Pieri⁴, G. Polese¹, A. Racz¹, O. Raginel², H. Sakulin¹, M. Sani⁴, C. Schwick¹, A. C. Cristian Spataru¹, F. Stoeckli², K. Sumorok²

¹CERN, Switzerland; ²Massachusetts Institute of Technology, USA; ³DESY, Germany; ⁴University of California, San Diego, USA; ⁵Eidgenossische Technische Hochschule, Switzerland; ⁶University of California, Los Angeles, USA; ⁷FNAL, USA

PS1-29 Phase and Amplitude Drift Calibration of the RF Detectors in a MTCA.4 Based LLRF System

J. Piekarski¹, K. Czuba¹, M. Hoffmann², W. Jalmuzna³, F. Ludwig², H. Schlarb², C. Schmidt², B. Yang²

¹Institute of Electronic Systems, Poland; ²Deutsches Elektronen-Synchrotron, Germany; ³Technical University of Lodz, Poland

PS3-35 Implementation of Intelligent Data Acquisition Systems for Fusion Experiment Using EPICS and FlexRIO Technology

D. Sanz¹, M. Ruiz¹, R. Castro², J. Vega², J. M. Lopez¹, E. Barrera¹, N. Utzel³, P. Makijarvi³

¹Universidad Politecnica de Madrid, Spain; ²Asociacion EURATOM/CIEMAT, Spain; ³ITER Organizartion, France

PS4-1 A General Self-Organization Tree-Based Energy-Balance Routing Protocol for Wireless Sensor Network

Z. Han, J. Wu, J. Zhang, L. Liu, K. Tian

University of Science and Technology of China, China, 230026

PS4-9 Experiences with the MTCA.4 Solution for the EuXFEL Clock and Control System

E. Motuk, M. Postranecky, M. Warren, M. Wing

University College London, United Kingdom

PS4-12 Timing and Triggering System for the European XFEL Project - a Double Sized AMC Board

A. Hidvegi¹, P. Gessler², H. Kay³, K. Rehlich³, C. Bohm¹

¹Stockholm University, Sweden; ²European X-Ray Free Electron Laser Facility GmbH, Germany; ³Deutsches Elektronen-Synchrotron (DESY), Germany

PS4-14 Directive Multi-Channel Beta Probe for Detecting Small Tumors

S. J. Jeon, J. H. Park, K. S. Joo

Myongji University, South Korea

PS4-20 High-Precision Accelerator RF Control for the European XFEL

H. Schlarb¹, F. Ludwig¹, M. Hoffmann¹, T. Jezynski¹, J. Branlard¹, C. Schmidt¹, M. Grecki¹, V. Ayvazyan¹, S. Pfeiffer¹, K. Czuba², A. Piotrowski³, O. Hensler¹, W. Jalmuzna³, D. Makowski³, L. Butkoswki², W. Cichalewski³, I. Kudla¹, J. Piekarski², K. Przygoda³, I. Rutkowski², D. Sikora², J. Szewinski¹, W. Wierba¹, B. Yang¹, L. Zembala², S. B. Habib²

¹DESY, Germany; ²WUT, Polen; ³Uni of Lodz, Polen

PS3-22 Minimizing Dead Time of the Belle II Data Acquisition System with Pipelined Trigger Flow Control

M. Nakao¹, C. Lim², M. Friedl³, T. Uchida¹

¹KEK, High Energy Accelerator Research Organization, Japan; ²Yonsei University, Korea; ³HEPHY, Austrian Academy of Sciences, Austria

PS4-2 Real Time Control System of Active Reflector of FAST

X.-C. Deng^{1,2}, W.-Q. Wu^{1,2}, M.-C. Luo^{1,2}, H.-T. Shen³, L.-C. Zhu³, P.-Y. Tang^{1,2}, J.-J. Liu^{1,2}, F. Li^{1,2}, G. Jin^{1,2}, J. Wang^{1,2}

¹Univ. of Sci. & Tech. of China, China; ²State Key Laboratory of Technologies of Particle Detection and Electronics, china; ³National Astronomical Observatories., china

PS3-20 Upgrading the Backend of the Pipeline Readout System for Belle II

S. Y. Suzuki, T. Higuchi, M. Nakao, R. Itoh, Y. Igarashi

KEK, Japan



PS3-31 Communication Architecture of DAQ-Middleware

Y. Nagasaka, Hiroshima Institute of Technology, Japan; H. Sendai, E. Inoue, High Energy Accelerator Research Organization, Japan; T. Koutoku, N. Ando, The National Institute of Advanced Industrial Science and Technology, Japan; S. Ajimura, Osaka University, Japan; M. Wada, Bee Beans Technologies Co. Ltd., Japan

PS3-34 Advanced Linux PCI Services (ALPS) for Rapid Prototyping of PCI-Based DAQ Electronics

S. A. Chilingaryan, M. Caselle, A. Kopmann, U. Stevanovic, M. Vogelgesang
Karlsruhe Institute of Technology, Germany

PS3-37 A 16-Channel 15 ps TDC Implemented in a 65 nm FPGA

L. Zhao^{1,2}, X. Hu^{1,2}, S. Liu^{1,2}, J. Wang^{1,2}, Q. An^{1,2}

¹University of Science and Technology of China, China; ²Department of Modern Physics, University of Science and Technology of China, China

PS3-5 Design and Implementation of DAQ Readout System for Daya Bay Reactor Neutrino Experiment

X. Ji, F. Li, K. Zhu

Institute of High Energy Physics, Chinese Academy of Sciences, China

PS4-21 The Application of Embedded System in Csns Experimental Control System

J. Zhuang, K. Zhu, Y. Chu, L. Hu, J. Li, D. Jin

Institute of High Energy Physics, CAS, China

PS3-16 An FPGA Based GEMROC ASIC Readout System

B. Mindur, W. Dabrowski, T. Fiutowski, P. Wiacek, A. Zielinska
AGH University of Science and Technology, Poland

PS3-23 Development of New Data Acquisition System at Super-Kamiokande for Nearby Supernova Bursts

T. Tomura¹, Y. Hayato¹, M. Ikeda², M. Nakahata¹, S. Nakayama¹, Y. Obayashi¹, K. Okumura¹, M. Shiozawa¹, S. Y. Suzuki², T. Uchida², S. Yamada³, T. Yokozawa¹

¹University of Tokyo, Japan; ²High Energy Accelerator Research Organization (KEK), Japan; ³Tohoku University, Japan

PS4-11 Superconducting Cavities Automatic Loaded Quality Factor Control at FLASH

W. Cichalewski, Technical University of Lodz, Poland; J. Branlard, H. Schlarb, N. Walker, Deutsches Elektronen Synchrotron, Germany; J. Carwardine, Argonne National Laboratory, USA

PS3-2 A Prototype of Underground Muon Counters Triggered from the Pierre Auger Surface Detectors Built on Unified Altera Platform

Z. Szadkowski, University of Lodz, Poland

PS3-32 Implementation of the Disruption Predictor APODIS in JET Real Time Network Using the MARTe Framework

J. M. Lopez¹, J. Vega², D. Alves³, S. Dormido-Canto⁴, A. Murari⁵, J. M. Ramirez⁴, R. Felton⁶, M. Ruiz¹, G. D. Arcas¹, and JET-EFDA Contributors⁷

¹Universidad Politecnica de Madrid, Spain; ²Asociacion EURATOM CIEMAT para Fusion, Spain;

³Instituto de Plasmas e Fusao Nuclear. Instituto Superior Tecnico, Univ. Técnica de,

Portugal; ⁴Universidad de Educacion a Distancia, Spain; ⁵Consorzio RFX-Associazione EURATOM ENEA per la Fusione, Italy; ⁶EURATOM/CCFE Fusion Association, Culham Science Center OX14 3DB, United Kingdom; ⁷See Appendix of F. Romanelli et al Proc. 23rd IAEA Fusion Energy Conference 2010, Korea

PS4-18 Recent Developments in Control Software for Optical Synchronization Applications at DESY

P. Prędki, T. Kozak, A. Napieralski

Technical University of Lodz, Poland

Coffee break (15:40-16:00)



PS3 Poster Session 3

Thursday, June 14 16:00-17:20 Boiler Room

PS3-1 Readout Electronics and Data Acquisition of a Time of Flight Detector for Positron Emission Tomography

J. Y. Yeom, V. Spanoudaki, K. J. Hong, C. S. Levin

Stanford University, United States

PS3-2 A Prototype of Underground Muon Counters Triggered from the Pierre Auger Surface Detectors Built on Unified Altera Platform

Z. Szadkowski, University of Lodz, Poland

PS3-3 Design of the Trigger Interface and Distribution Board for CEBAF 12 GeV Upgrade

W. Gu, D. Abbott, C. Cuevas, G. Heyes, E. Jastrzembski, B. Moffit, B. Raydo, J. Wilson, H. Dong, S. Kaneta, N. Nganga, C. Timmer, V. Gyurjyan

Jefferson Lab, United States

PS3-4 A Correlation Measurement System for Ghost Imaging Experiment

L. Chen^{1,2}, M. Zheng^{1,2}, L. Zhang^{1,2}, G. Jin^{1,2}

¹University of Science and Technology of China, China; ²State Key Laboratory of Particle Detection and Electronics, China

PS3-5 Design and Implementation of DAQ Readout System for Daya Bay Reactor Neutrino Experiment

X. Ji, F. Li, K. Zhu

Institute of High Energy Physics, Chinese Academy of Sciences, China

PS3-6 ATLAS IBL BOC Prototype Evaluation

N. Schroer, ZITI - University of Heidelberg, Germany

PS3-7 High-Speed Data Acquisition System of Microwave Reflectometry Based on LabVIEW for Long Pulse Operation

S. Li, Y. Chen, F. Wang, Y. Wang, W. Huang, X. Sun

Institute of Plasma Physics, CAS, China

PS3-8 Clock Distribution Board for the $4\pi\beta\gamma$ Coincidence Counting System

H. Wang^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, K. Zhang^{1,2}

¹University of Science and Technology of China, China; ²the State Key Laboratory of Particle Detection and Electronics, China

PS3-9 Implementation of High-Speed USB Interface in Data Acquisition System for KTX

W. Lv^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, L. Dong^{1,2}

¹University of Science and Technology of China, China; ²the State Key Laboratory of Particle Detection and Electronics, China

PS3-10 An FPGA-Based Readout Module for the DAQ Subsystem of the DSSC Detector at the European XFEL

T. Gerlach, A. Kugel, Heidelberg University, Germany

PS3-11 Development of a High Resolution PXI Based Data Acquisition System for Electron Momentum Spectrometer

Y. Huang, S. Liu, J. Wang, X. Hu, C. Feng, Q. An

University of Science and Technology of China, China

PS3-12 A Fast Data Streaming System Using PCI Express for EAST Tokamak

F. Wang, S. Li, Y. Wang, X. Sun

Institute of Plasma Physics, Chinese Academy Sciences, China

PS3-13 A High Speed High Resolution Digital Platform for the $4\pi\beta\gamma$ Coincidence Counting System

K. Zhang^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, H. Wang^{1,2}

¹University of Science and Technology of China, China; ²the State Key Laboratory of Particle Detection and Electronics, China



PS3-14 The Readout Electronics of the Micromegas-Based Large Time Projection Chamber Prototype for the International Linear Collider

D. Calvet, D. Attie, D. Besin, P. Colas, R. Joannes, A. Le Coguie, S. Lhenoret, I. Mandjavidze, M. Riallot, W. Wang, E. Zonca
CEA-IRFU, France

PS3-15 Design of a Low-Noise Analog Signal Processing Circuit for CZT Detectors

B. Gan, T. Wei, W. Gao, D. Gao, *Northwestern Polytechnical University, China*; Y. Hu, *University of Strasbourg/CNRS, France*

PS3-16 An FPGA Based GEMROC ASIC Readout System

B. Mindur, W. Dabrowski, T. Fiutowski, P. Wiacek, A. Zielinska
AGH University of Science and Technology, Poland

PS3-17 Design and Test of a High-Speed Flash ADC Mezzanine Card for High-Resolution and Timing Performance for Nuclear Structure Experiments

X. Egea Canet^{1,2}, E. Sanchis², V. Gonzalez², A. Gadea¹, J. M. Blasco², D. Barrientos^{1,2}, J. J. Valiente Dobon³, M. Tripon⁴, A. Boujrad⁴, C. Houarner⁴, M. Jastrzab⁵, G. de Angelis³, M. N. Erduran⁶, S. Erturk⁷, T. Huyuk¹, G. Jaworski^{8,9}, J. Nyberg¹⁰, M. Palacz⁹, G. de France⁴, A. di Nitto¹¹, A. Pipidis³, R. Tarnowski⁹, R. Wadsworth¹², A. Triossi³

¹*IFIC (Institut de fisica corpuscular), Spain*; ²*UV (Universitat de Valencia), Spain*; ³*INFN, Laboratori Nazionali di Legnaro, Italy*; ⁴*Grand Accelerateur National d'Ions Lourds, France*; ⁵*Niewodzanski Institute of nuclear physics, Polish Academy of Sciences, Poland*; ⁶*Instanbul Sabahattin Zaim university Instanbul, Turkey*; ⁷*Nigde Universitesi, Turkey*; ⁸*Warzaw university of technology, Poland*; ⁹*University of Warzaw, Poland*; ¹⁰*Uppsala University, Sweden*; ¹¹*INFN, Sezione di Napoli, Italy*; ¹²*University of York, United Kingdom*

PS3-18 Design of an Optical Uplink with 10Gbit/s Link Between PCIe and MicroTCA

H. Kleines, P. Wstner, A. Ackens, M. Drochner, P. Kmmerling, S. van Waesen, M. Ramm
Forschungszentrum Jülich, Germany

PS3-19 Real-Time Data Acquisition for Long-Distance Reflective Ghost Imaging Experiment with Thermal Light

F. Wen^{1,2}, F. Li^{1,2}, Q. Wang^{1,2}, G. Jin^{1,2}
¹*University of Science and Technology of China, China*; ²*State Key Laboratory of Particle Detection and Electronics, China*

PS3-20 Upgrading the Backend of the Pipeline Readout System for Belle II

S. Y. Suzuki, T. Higuchi, M. Nakao, R. Itoh, Y. Igarashi
KEK, Japan

PS3-21 Development of an AMC Module MMC

P. Kaemmerling, M. Drochner, H. Kleines, S. van Waesen, M. Ramm, A. Ackens
Forschungszentrum Juelich, Germany

PS3-22 Minimizing Dead Time of the Belle II Data Acquisition System with Pipelined Trigger Flow Control

M. Nakao¹, C. Lim², M. Friedl³, T. Uchida¹
¹*KEK, High Energy Accelerator Research Organization, Japan*; ²*Yonsei University, Korea*; ³*HEPHY, Austrian Academy of Sciences, Austria*

PS3-23 Development of New Data Acquisition System at Super-Kamiokande for Nearby Supernova Bursts

T. Tomura¹, Y. Hayato¹, M. Ikeda², M. Nakahata¹, S. Nakayama¹, Y. Obayashi¹, K. Okumura¹, M. Shiozawa¹, S. Y. Suzuki², T. Uchida², S. Yamada³, T. Yokozawa¹

¹*University of Tokyo, Japan*; ²*High Energy Accelerator Research Organization (KEK), Japan*; ³*Tohoku University, Japan*

PS3-24 Research of Long Distance Clock Distribution System

Y. Yang, K. Hanson, T. Meures
Interuniversity Institute for High Energies (IIHE), Brussels, Belgium



PS3-25 Development of the Data Acquisition System of a Large TPC for the ILC

G. W. P. De Lentdecker, E. Verhagen, Y. Yang, *Universite Libre de Bruxelles, Belgium*; L. Jonsson, B. Lundberg, U. Mjornmark, A. Oskarsson, L. Osterman, E. Stenlund, *Lund University, Sweden*

PS3-26 Real-Time Performance of Commercial Intel-Based VME Controllers for the CODA Data Acquisition System

B. J. Moffit, *Jefferson Lab, United States*

PS3-27 A Readout System Utilizing the APV25 ASIC for the Forward GEM Tracker in STAR

G. J. Visser¹, J. T. Anderson², B. Buck³, A. S. Kreps², T. Ljubicic⁴

¹*Indiana University, United States*; ²*Argonne National Laboratory, United States*; ³*Massachusetts Institute of Technology, United States*; ⁴*Brookhaven National Laboratory, United States*

PS3-28 A Comprehensive Zero-Copy Architecture for High Performance Distributed Data

Acquisition over Advanced Network Technologies for the CMS Experiment

A. Petrucci¹, G. Bauer², U. Behrens³, J. Branson⁴, S. Bukowiec¹, O. Chaze¹, S. Cittolin⁵, J. A. Coarasa Perez¹, C. Deldicque¹, M. Dobson¹, A. Dupont¹, S. Erhan⁶, D. Gigl¹, F. Glege¹, R. Gomez-Reino¹, C. Hartl¹, A. Holzner⁴, L. Masetti¹, F. Meijers¹, E. Meschi¹, R. Mommesen⁷, C. Nunez-Barranco-Fernandez¹, V. O'Dell⁷, L. Orsini¹, C. Paus², M. Pieri⁴, G. Polese¹, A. Racz¹, O. Raginel², H. Sakulin¹, M. Sani⁴, C. Schwick¹, A. C. Cristian Spataru¹, F. Stoeckli², K. Sumorok²

¹*CERN, Switzerland*; ²*Massachusetts Institute of Technology, USA*; ³*DESY, Germany*; ⁴*University of California, San Diego, USA*; ⁵*Eidgessische Technische Hochschule, Switzerland*; ⁶*University of California, Los Angeles, USA*; ⁷*FNAL, USA*

PS3-29 A Novel Data Acquisition Scheme Based on a Low-Noise Front-End ASIC and a High-Speed ADC for CZT-Based Small-Animal PET Imaging

W. Gao, D. Gao, B. Gan, L. Wang, F. Xue, T. Wei, *Northwestern Polytechnical University, China*; Y. Hu, *UMR 7178 CNRS/UDS, France*

PS3-31 Communication Architecture of DAQ-Middleware

Y. Nagasaka, *Hiroshima Institute of Technology, Japan*; H. Sendai, E. Inoue, *High Energy Accelerator Research Organization, Japan*; T. Koutoku, N. Ando, *The National Institute of Advanced Industrial Science and Technology, Japan*; S. Ajimura, *Osaka University, Japan*; M. Wada, *Bee Beans Technologies Co. Ltd., Japan*

PS3-32 Implementation of the Disruption Predictor APODIS in JET Real Time Network Using the MARTe Framework

J. M. Lopez¹, J. Vega², D. Alves³, S. Dormido-Canto⁴, A. Murari⁵, J. M. Ramirez⁴, R. Felton⁶, M. Ruiz¹, G. D. Arcas¹, and JET-EFDA Contributors⁷

¹*Universidad Politecnica de Madrid, Spain*; ²*Asociacion EURATOM CIEMAT para Fusion, Spain*; ³*Instituto de Plasmas e Fusao Nuclear, Instituto Superior Tecnico, Univ. Tecnica de, Portugal*; ⁴*Universidad de Educacion a Distancia, Spain*; ⁵*Consorzio RFX-Associazione EURATOM ENEA per la Fusione, Italy*; ⁶*EURATOM/CCFE Fusion Association, Culham Science Center OX14 3DB, United Kingdom*; ⁷*See Appendix of F. Romanelli et al Proc. 23rd IAEA Fusion Energy Conference 2010, Korea*

PS3-33 A Versatile High Speed Data Acquisition Module with Four 10G Ethernet Links

I. Sheviakov, M. Zimmer

Deutsches Elektronen-Synchrotron, Germany

PS3-34 Advanced Linux PCI Services (ALPS) for Rapid Prototyping of PCI-Based DAQ Electronics

S. A. Chilingaryan, M. Caselle, A. Kopmann, U. Stevanovic, M. Vogelgesang

Karlsruhe Institute of Technology, Germany

PS3-35 Implementation of Intelligent Data Acquisition Systems for Fusion Experiment Using EPICS and FlexRIO Technology

D. Sanz¹, M. Ruiz¹, R. Castro², J. Vega², J. M. Lopez¹, E. Barrera¹, N. Utzel³, P. Makijarvi³

¹*Universidad Politecnica de Madrid, Spain*; ²*Asociacion EURATOM/CIEMAT, Spain*; ³*ITER Organizarion, France*

PS3-36 DEAP-3600 Dark Matter Experiment Data Acquisition and Trigger System

A. J. Muir, *TRIUMF, Canada*

**PS3-37 A 16-Channel 15 ps TDC Implemented in a 65 nm FPGA**

L. Zhao^{1,2}, X. Hu^{1,2}, S. Liu^{1,2}, J. Wang^{1,2}, Q. An^{1,2}

¹University of Science and Technology of China, China; ²Department of Modern Physics, University of Science and Technology of China, China

PS3-38 Development of High Resolution TDC Implemented in Radiation Tolerant FPGAs for Aerospace Application

X. Qin^{1,2}, C. Feng^{1,2}, L. Zhao^{1,2}, D. Zhang^{1,2}, X. Hao¹, S. Liu^{1,2}, Q. An^{1,2}

¹University of Science and Technology of China, China; ²State Key Laboratory of Technologies of Particle Detection & Electronics, China

PS3-39 SEUs Tolerance in FPGAs Based Digital LLRF System for XFEL

M. K. Grecki, DESY, Hamburg, Germany

PS3-40 Maximum Likelihood Estimation and Non-Linear Least Squares Fitting with Levenberg-Marquardt Algorithm Implementation in FPGA Devices for High Resolution Hodoscopy

J. M. Blasco, E. Sanchis, V. Gonzalez, J. D. Martin, X. Egea, D. Barrientos, D. Granero

Universidad de Valencia, Spain

PS3-41 Multiple Register Synchronization with a High-Speed Serial Link Using the Aurora Protocol

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹Instituto de Fisica Corpuscular (CSIC-UV), Spain; ²Istituto di Fisica Nucleare (INFN), Sezione di Padova, Italy; ³Departamento Ingeniera Electronica, Universitat de Valencia, Spain; ⁴Istituto di Fisica Nucleare (INFN), Sezione di Milano, Italy

PS3-42 Graphical User Interface for Serial Protocols Through a USB Link

D. Barrientos^{1,2,3}, V. Gonzalez³, M. Bellato², A. Gadea¹, D. Bazzacco², J. M. Blasco³, D. Bortolato², F. J. Egea^{1,3}, R. Isocrate², A. Pullia⁴, G. Rampazzo², E. Sanchis³, A. Triossi²

¹Instituto de Fisica Corpuscular (CSIC-UV), Spain; ²Istituto di Fisica Nucleare (INFN), Sezione di Padova, Italy; ³Departamento Ingeniera Electronica, Universitat de Valencia, Spain; ⁴Istituto di Fisica Nucleare (INFN), Sezione di Milano, Italy

PS3-43 SEU Effects on Power Consumption in Xilinx FPGAs

A. Aloisio^{1,2}, V. Bocci², G. Chiodi², R. Giordano^{1,2}, V. Izzo², L. Sterpone³, M. Violante³

¹University of Naples 'Federico II' and INFN, Italy; ²INFN, Italy; ³Politechnico di Torino, Italy

PS3-44 Online Software Time Calibration for a Continuous Air Shower Array

S. Mastroianni, INFN, Italy; M. Iacovacci, Universit, Italy

FERT1 FPGA and Electronics Applied to Realtime Systems 1

Thursday, June 14 17:20-18:20 Crystal Ballroom

Session Chairs: Jean-Francois C. Genat, CNRS/IN2P3/LPNHE, France,
Mike E. Huffer, SLAC, United States

FERT1-1 Research of real-time time interval measurement and non-linear phase adjustment of photon pairs in entanglement swapping experiment

Z. Sang^{1,2}, X. Jiang^{2,3}, F. Li^{1,2}, H. Zhang^{2,3}, T. Zhao^{2,3}, G. Jin^{1,2}

¹State Key Laboratory of Particle Detection and Electronics, China; ²University of Science and Technology of China, China; ³Hefei National Laboratory for Physical Science at Microscale, China

FERT1-2 A Compact Dosimeter for Space Applications

C. Deneau¹, J.-R. Vaille^{1,2}, F. Bezerra³, E. Lorfevre³, R. Ecoffet³, L. Dusseau¹

¹Universite Montpellier 2, France; ²Universite de Nimes, France; ³Centre National d'Etudes Spatiales, France

FERT1-3 A Low-Resolution, GSa/s Streaming Digitizer for a Correlation-Based Trigger System

K. Nishimura¹, M. Andrew¹, Z. Cao¹, M. Cooney¹, P. Gorham¹, L. Macchiarulo¹, L. Ritter¹, A. Romero-Wolf², G. Varner¹

¹University of Hawaii at Manoa, United States; ²Jet Propulsion Laboratory, United States



Real Time 2012 Banquet, Berkeley Art Museum
Thursday, June 14, 19:00pm - 22:00

2575 Bancroft Way
Berkeley, CA 94720
<http://www.bampfa.berkeley.edu/>
(510) 642-0808

A shuttle to and from the Berkeley Art Museum will be provided at the main entrance of the Hotel Shattuck. The shuttle will begin at 18:30 and run continuously, with the last bus departing the Museum at 22:00.



Friday

FERT2 FPGA and Electronics Applied to Realtime Systems 2

Friday, June 15 08:30-10:40 Crystal Ballroom

*Session Chairs: Jinyan Wu, FNAL, United States,
Gary Varner, Hawaii Univ., United States*

FERT2-1 (invited) Status and Perspectives of Fast Waveform Digitizers

R. Paoletti, University of Siena and INFN Pisa, Italy

FERT2-2 Hardware Timebase Calibration in the Multi-GSa/s LABRADOR-4 ASIC

G. S. Varner, M. Z. Andrew, Z. Cao, K. A. Nishimura, P. W. Gorham
Hawaii Univ., United States

FERT2-3 Time Interval Analyzer with FPGA-Based TDC for Free Space Quantum Key

Distribution: Principle and Validation with Prototype Setup

Q. Shen¹, S. Liao¹, S. Liu¹, J. Wang¹, W. Liu², C. Peng¹, Q. An¹

¹*University of Science and Technology of China, China;* ²*Ningbo University, China*

FERT2-4 128 Channels of Multi-GSa/s Waveform Sampling and Digitization in an 800 cm³

Package

M. Z. Andrew, C. N. Lim, K. A. Nishimura, L. J. Ridley, G. S. Varner

University of Hawaii, United States

FERT2-5 A Stepped-Up Tree Encoder for 10-ps Wave Union TDC

X. Hu^{1,2}, L. Zhao^{1,2}, S. Liu^{1,2}, J. Wang^{1,2}, Q. An^{1,2}

¹*University of Science and Technology of China, China;* ²*Department of Modern Physics, University of Science and Technology of China, China*

FERT2-6 A Silicon Diode Based Detector for Radiation Measurement in High Altitude Natural Environment

D. Pantel¹, J.-R. Vaille¹, F. Wrobel¹, L. Dilillo², J.-M. Galliere², J.-L. Autran³, P. Cocquerez⁴,

P. Chadoutaud⁴, F. Saigne¹

¹*Universite Montpellier 2, France;* ²*LIRMM, France;* ³*IM2NP, France;* ⁴*CNES, France*

Coffee break (10:40-11:05)

PS4 Poster Session 4

Friday, June 15 11:05-11:35 Crystal Ballroom

PS4-1 A General Self-Organization Tree-Based Energy-Balance Routing Protocol for Wireless Sensor Network

Z. Han, J. Wu, J. Zhang, L. Liu, K. Tian

University of Science and Technology of China, China, 230026

PS4-2 Real Time Control System of Active Reflector of FAST

X.-C. Deng^{1,2}, W.-Q. Wu^{1,2}, M.-C. Luo^{1,2}, H.-T. Shen³, L.-C. Zhu³, P.-Y. Tang^{1,2}, J.-J. Liu^{1,2}, F. Li^{1,2}, G. Jin^{1,2}, J. Wang^{1,2}

¹*Univ. of Sci. & Tech. of China, China;* ²*State Key Laboratory of Technologies of Particle Detection and Electronics, china;* ³*National Astronomical Observatories, china*

PS4-3 IPMI Test Software for MicroTCA Developments

M. Drochner, P. Kaemmerling, H. Kleines, S. v. Waasen

FZJ/ZEL, Germany

PS4-4 The Research and Design of the Data Acquisition System and the Control System of KTX

J. An, K. Song, P. Cao, J. Yang

the State Key Laboratory of Particle Detection and Electronics, China



PS4-5 Conception Design and Key Issues on Remote Participation in EAST Tokamak

X. Sun, F. Wang, S. Li, Y. Wang

Institute of Plasma Physics, Chinese Academy of Sciences, China

PS4-6 A Prototype GUI for the Multi-Channel Sensor Data Acquisition and Monitoring System of KTX

L. Dong^{1,2}, K. Song^{1,2}, J. Yang^{1,2}, P. Cao^{1,2}, D. Mao^{1,2}, W. Lv^{1,2}

¹*University of Science and Technology of China, China;* ²*State Key Laboratory of Particle Detection and Electronics, China*

PS4-7 Axisymmetric Magnetic Control in ITER

L. Zabeo¹, G. Ambrosino², M. Cavinato³, Y. Gribov¹, D. Humpreys⁴, J. A. Snipes¹, M. Walker⁴, A. Kavin⁵, V. Lukash⁶, G. Vayakis¹

¹*ITER Organisation, France;* ²*CREATE/ENEA/Euratom Association, Universita' di Napoli Federico II, Italy;* ³*Fusion for Energy (F4E), Spain;* ⁴*General Atomics, USA;* ⁵*D.V.Efremov Scientific Research Institute, Russia;* ⁶*Kurchatov Institute, Russia*

PS4-8 Present Status of the ITER Real-Time Plasma Control System Development

A. Winter, P. Makijarvi, S. Simrock, J. Snipes, A. Wallander, L. Zabeo

ITER Organization, France

PS4-9 Experiences with the MTCA.4 Solution for the EuXFEL Clock and Control System

E. Motuk, M. Postranecky, M. Warren, M. Wing

University College London, United Kingdom

PS4-10 New strategy for the control of low frequency large band mechanical suspensions and inertial platforms

F. Barone^{1,2}, F. Acernese^{1,2}, R. De Rosa^{3,2}, G. Giordano¹, R. Romano^{1,2}

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PS4-11 Superconducting Cavities Automatic Loaded Quality Factor Control at FLASH

W. Cichalewski, *Technical University of Lodz, Poland*; J. Branlard, H. Schlarb, N. Walker, *Deutsches Elektronen Synchrotron, Germany*; J. Carwardine, *Argonne National Laboratory, USA*

PS4-12 Timing and Triggering System for the European XFEL Project - a Double Sized AMC Board

A. Hidvegi¹, P. Gessler², H. Kay³, K. Rehlich³, C. Bohm¹

¹*Stockholm University, Sweden;* ²*European X-Ray Free Electron Laser Facility GmbH, Germany;* ³*Deutsches Elektronen-Synchrotron (DESY), Germany*

PS4-13 Secure and Reliable Remote Access for the European XFEL Control System

C. C. W. Robson, C. Bohm, *Stockholms universitet, Sweden*; K. Rehlich, R. Kammering, *Deutsches Elektronen-Synchrotron, Germany*

PS4-14 Directive Multi-Channel Beta Probe for Detecting Small Tumors

S. J. Jeon, J. H. Park, K. S. Joo

Myongji University, South Korea

PS4-15 MicroTCA for the European XFEL: a Hardware and Software Report

K. Rehlich, *DESY, Germany*

PS4-17 High-Performance Scalable Information Service for the ATLAS Experiment.

S. Kolos, *University if California Irvine, USA*

PS4-18 Recent Developments in Control Software for Optical Synchronization Applications at DESY

P. Prędki, T. Kozak, A. Napieralski

Technical University of Lodz, Poland

PS4-19 The New Generation of the LHC Accelerator Radiation Monitoring System

A. Masi, M. Brugger, M. Donze¹, G. Spiezja, P. Peronnard

CERN, Switzerland

PS4-20 High-Precision Accelerator RF Control for the European XFEL

H. Schlarb¹, F. Ludwig¹, M. Hoffmann¹, T. Jezynski¹, J. Branlard¹, C. Schmidt¹, M. Grecki¹, V. Ayvazyan¹, S. Pfeiffer¹, K. Czuba², A. Piotrowski³, O. Hensler¹, W. Jalmuzna³, D. Makowski³, L. Butkoswki², W. Cichalewski³, I. Kudla¹, J. Piekarski², K. Przygoda³, I. Rutkowski², D. Sikora², J. Szewinski¹, W. Wierba¹, B. Yang¹, L. Zembala², S. B. Habib²

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18th REAL-TIME
CONFERENCE | 2012
June 11-15, 2012, Berkeley, CA

PS4-21 The Application of Embedded System in Csns Experimental Control System

J. Zhuang, K. Zhu, Y. Chu, L. Hu, J. Li, D. Jin

Institute of High Energy Physics, CAS, China

Development of an ATCA Based Data Acquisition System for High Speed, Direct Detection X-Ray Pixel Sensors

J. Joseph, D. Contarato, P. Denes, D. Doering, P. McVittie, *Lawrence Berkeley National Laboratory, United States*; J. Weizerick, *Argonne National Laboratory, United States*

Data Acquisition System Based on Time-Interleaved Analog-to-Digital Conversion for Time-of-Flight Mass Spectrometer

X. Hu, L. Zhao, W. Zheng, S. Liu, Q. An

University of Science and Technology of China, China

FERT3 FPGA and Electronics Applied to Realtime Systems 3

Friday, June 15 11:35-12:15 Crystal Ballroom

Session Chair: W. E. Norum, Lawrence Berkeley National Laboratory, United States

FERT3-1 Real-Time Clustering for Pixel Detectors: the Dee3 ASIC for the PXD Detector in the Belle II Experiment @KEK

A. Wassatsch, R. Richter

Max-Planck-Institut fuer Physik, Germany

FERT3-2 Quantization Analysis of the Infrared Interferometer of the TJ-II for Its Optimized FPGA-Based Implementation

L. Esteban¹, J. A. Lopez², E. Sedano², M. Sanchez¹

¹*Centro de Investigaciones Energéticas Medioambientales y Tecnológicas, Spain*; ²*Universidad Politécnica de Madrid, Spain*

Closing Session

Friday, June 15 12:15-12:45 Crystal Ballroom

Session Chair: Sergio Zimmermann, LBNL, United States

Closing-1 RT2014

M. Nomachi, *Osaka University, Japan*

Closing-2 Closing Talk

S. Zimmermann, *LBNL, USA*

Sat June 9	Sun June 10	Mon June 11		Tue June 12		Wed June 13		Thur June 14		Fri June 15	
Whitecotton/ Boiler	Whitecotton/ Boiler	Crystal Ball	Boiler	Crystal Ball	Boiler	Crystal Ball	Crystal Ball	Boiler	Crystal Ball	Boiler	
		Set posters		Set posters		Set posters		Set posters		Set posters	
Tutorial	Tutorial	Welcome		Triggers		DAQ 1 Medical	DAQ 2 Fusion		FPGA and Electronics Applied to RT Systems 2		
Coffee Brk	Coffee Brk	Coffee Brk		Coffee Brk		Coffee Brk	Coffee Brk		Coffee Brk	Poster Section #4	
Tutorial	Tutorial	Opening	Vendor/ Exhibits	Monitoring Signal processing 1	Vendor/ Exhibits	Upgrades 2	DAQ 3		Poster Session 4 (PD, DAQ, TS, CMTS)	FPGA and Electronics Applied to RT Systems 3	
Lunch	Lunch	Lunch		Mini-Oral		Mini-Oral	Mini-Oral		Closing	Remove posters	
Tutorial	Tutorial	New Standard Updates Emerging technologies TCA	Poster Section #1	Monitoring Signal processing 2	Poster Section #2	DAQ 4		Poster Section #3	Abbreviations PF: Processing farm ISP: Intelligent signal processing FDLT: Fast data transfer links and networks ERT: Emerging realtime technologies NS: New standards FOE: Feedback on experiences RSA: Realtime system architectures PD: Programmable devices DAQ: Data acquisition TS: Trigger systems CMTS: Control, monitoring, and test systems RSS: Realtime safety and security		
Coffee Brk	Coffee Brk	Coffee Brk	Poster Session 1 (PF, ISP, FDTL, ERT,FOE, RSA, RSS)	Poster Session 2 (PF, ISP, ERT,FOE, RSA)	Excursion	Mini-Oral	Coffee Brk	Poster Session 3 (PD, DAQ, TS, CMTS)	FPGA and Electronics Applied to RT Systems 1		
Tutorial	Tutorial	Real Time system architecture		Upgrades 1		Conference Dinner	Remove posters				
			Reception				Remove posters				

Conference Information

On Site Registration

Onsite registration for 2012 Real Time will be available in the Hotel Lobby on Saturday and Sunday, and the foyer outside the Crystal Ballroom on Monday through Friday.

Registration hours are:

Date	Hours
Saturday, June 9	8:00 – 17:00
Sunday, June 10	8:00 – 17:00
Monday, June 11	7:00 – 21:00
Tuesday, June 12	7:30 – 18:00
Wednesday, June 13	7:30 – 12:00
Thursday, June 14	8:00 – 18:00
Friday, June 15	8:00 – 12:00

Exhibit Hall Hours

Date	Hours
Monday, June 11	10:00 – 21:00
Tuesday, June 12	10:30 – 18:30

Coffee Breaks

Coffee breaks will be served at 10:40 and 15:30 (Monday, Tuesday, and Thursday) and at 10:40 (Wednesday and Friday) in the Courtyard.

Social Events

Welcome Reception, Hotel Shattuck Courtyard
Monday, June 11, 19:00 – 21:00

Wine Country Excursion (with ticketed purchase)
Wednesday, June 13, 12:30 – 18:00

Tickets are \$30 for registered attendees, \$70 for a companion, and may be purchased at the registration desk. The fee includes a box lunch which will be distributed upon bus load in. The tour is limited to 100 people total: first come, first served.

Coaches will depart the hotel at approximately 12:30 and will return around 18:00.

Real Time 2012 Banquet, Berkeley Art Museum
Thursday, June 14, 19:00pm - 22:00

2575 Bancroft Way
Berkeley, CA 94720
<http://www.bampfa.berkeley.edu/>
(510) 642-0808

A shuttle to and from the Berkeley Art Museum will be provided at the main entrance of the Hotel Shattuck. The shuttle will begin at 18:30 and run continuously, with the last bus departing the Museum at 22:00.